

TAKS Objective 6
TEK G.5B
Tutorial
(Grade 11)

...use numeric and geometric patterns to make generalizations about geometric properties including properties of polygons, ratios in similar figures and solids, and angle relationships in polygons and circles.

How many triangles will a n-gon have when diagonals are drawn from one vertex?

Polygon Name (# of sides)	# of Triangles Formed when Diagonals are Drawn from One Vertex
Triangle (3)	1
Quadrilateral (4)	2
Pentagon (5)	3
Hexagon (6)	4
Heptagon (7)	5

$$n - 2$$

What is the sum of the interior angles of a n-gon?

Polygon Name (# of sides)	Sum of the Interior Angles
Triangle (3)	180
Quadrilateral (4)	360
Pentagon (5)	540
Hexagon (6)	720
Heptagon (7)	900

$$(n - 2)180$$

What is the measure of each interior angle of a regular n-gon?

Polygon Name (# of Triangles)	Measure of Each Interior Angle of a Regular Polygon
Triangle (3)	60
Quadrilateral (4)	90
Pentagon (5)	108
Hexagon (6)	120
Heptagon (7)	128 4/7

$$\frac{(n - 2)180}{n}$$

What is the sum of the exterior angles of a n-gon?

Polygon Name (# of Triangles)	Sum of the Measures of Exterior Angles of a Polygon
Triangle (3)	360
Quadrilateral (4)	360
Pentagon (5)	360
Hexagon (6)	360
Heptagon (7)	360

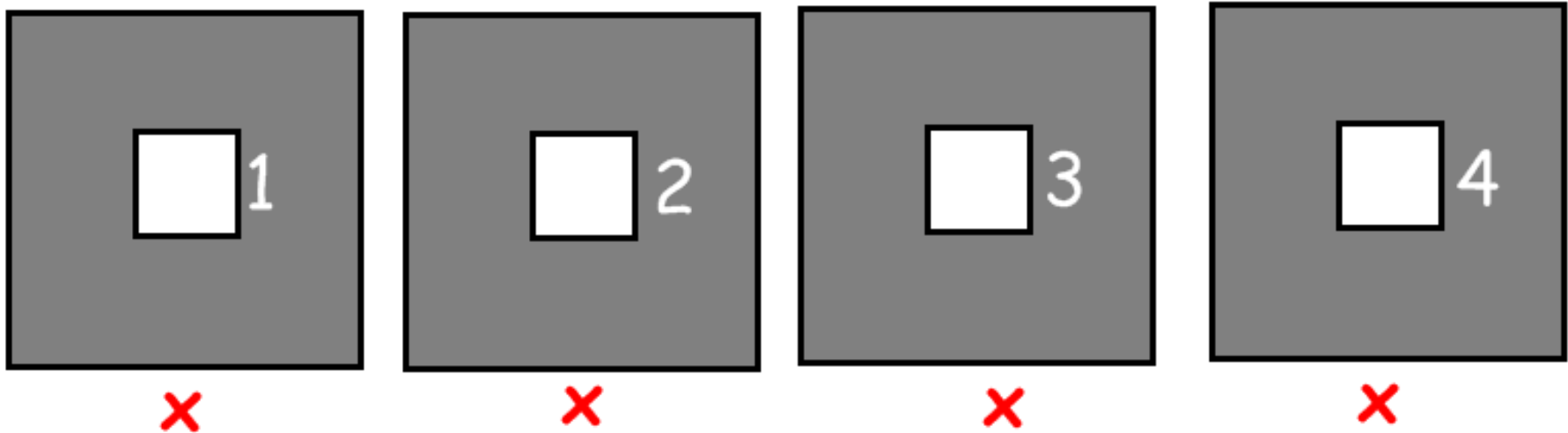
360

What is the measure of each exterior angle of a regular n-gon?

Polygon Name (# of Triangles)	Measure of Each Exterior Angle of a Regular Polygon
Triangle (3)	120
Quadrilateral (4)	90
Pentagon (5)	72
Hexagon (6)	60
Heptagon (7)	51 3/7

$$360/n$$

What would be the area of the shaded region of the n th stage?



$$x^2 - n^2$$